



Soil Facts

Management of Single Family and Small Community Wastewater Treatment and Disposal Systems

The Need for More Sophisticated Wastewater Management

To accommodate future growth in rural and suburban areas of our state, we will depend more on alternative septic-tank-soil-treatment systems (septic systems). However, as we use more complex and sophisticated types of septic systems, we must also use more sophisticated programs for maintaining these systems through their entire life cycle.

The legal means for establishing sophisticated wastewater management programs have existed for some time in North Carolina; however, few communities or counties have used these programs to manage septic systems. Recent changes in state septic system rules will provide an incentive for communities to become involved in this process. This publication explains why these management programs are necessary and briefly introduces 12 options for implementing them.

Large regional sewage treatment plants are not economical for many rural areas. Also, some mechanical treatment plants may not meet increasingly stringent water quality limits for wastewater discharge into streams, rivers, lakes, and sounds. Therefore, rural development in North Carolina depends upon the proper use of septic systems. Forty to sixty thousand of these systems are installed or repaired each year in our state.

There are several different kinds of septic systems. Conventional septic systems are the simplest and are described in Agricultural Extension Service publication AG-439-13, *Septic Systems and Their Maintenance*. Some modified conventional systems (such as artificial drainage systems) and alternative systems (such as low-pressure pipe systems) are more complex and require more maintenance. Agricultural Extension Service publications in the AG-439 series, *Septic System Options for Difficult Sites* and *Low-Pressure Pipe Alternative Septic Systems* describe these systems more completely.

The suitability of a building site for on-site sewage treatment and disposal depends upon soil and site conditions. Many sites that are suit-

able for conventional systems have already been developed, leaving less suitable sites for future use. Consequently, modified conventional and alternative septic systems may become more important for future land development.

These systems can function satisfactorily if they are used and maintained properly. However, a recent study in North Carolina found that many alternative septic systems (such as low-pressure pipe systems and sand mound systems) were not being adequately maintained. Without maintenance, alternative systems failed twice as often as conventional systems. The lack of a maintenance program was a major cause of poor system performance for about 40 percent of the alternative systems studied.

Therefore, to protect the environment and public health, alternative systems such as low-pressure pipe (LPP) systems need more intensive maintenance than is currently required for conventional systems. Even a number of modified conventional systems require more maintenance than usually given to conventional systems. For instance, sediment that has accumulated in open drainage ditches must be removed periodically if artificial drainage